12: Garnot--19-20 G-3 (1884-85) 1894 Formosans
116, 342, 351, 362

Except for the important group of houses at Loan-Loan or Wang-Wang the dwellings in the region around Kelung are scattered here and there at the foot of the hills or in the groves composed of bamboo, banana or areca trees. Most of the houses are fairly neat and they are made of a bamboo framework that is covered with rice straw. The corner supports are made of several beams that were taken from the neighboring forest and planted securely in the ground. The skeleton is a bamboo wattling and the whole thing is solidly tied together with little cords and pegs of the same kind. A broad pent-roof runs around the dwelling and protects it both from the sun and the rain. Very few of these houses have windows and they are all equipped with movable doors which can be dropped at night. The floor is covered with a kind of concrete made of lime and sand.

The land around the dwelling is enclosed by a bamboo hedge [20] and it is an orchard as well as a vegetable garden; you see banana trees, arecas, oranges and lemons, then there are litchis and mangoes, sweet potatoes and the kind of taro that grows in swamps.

15: U.S. Navy --22 [8] (no date) 1944 Formosans
116, 181, 175, 362, 563

"The Hakka Chinese people. The ancestors of the Hakka people came to the island from the hinterland of Fukien and Kwangtung provinces. They remain distinct from other Formosans in dialect, dress and some ways of village life. They were an audacious and bellicose people when they arrived; and in the southern part of the island particularly they had to push through earlier Chinese settlements along the coast to the marginal land beyond, between the settled Chinese and the aborigines who were gradually and forcefully being dispossessed. As a consequence, even today the Hakka settlements are among the foothills rather than on the plains. This sequence of immigration has caused the Hakka to intermarry more freely with the aborigines."

15: U.S. Navy--28 [8] (no date) 1944 Formosans
116, 342, 362

"Most urban houses have a narrow frontage in proportion to their depth--14, 16 or 18 feet are usual, with depths of the building ranging from 24, 30 to 36 feet. A court may intervene and a second or even a third building of the same proportions be added beyond intervening courts. Houses look much alike and since they abut upon one another, they present a tenement-like aspect. They are shabby and often quite unclean. In towns and cities the average building is two stories high. Sometimes the space above the street arcade is open, forming a balcony."

15: U.S. Navy--28 [9] (no date) 1944 Formosans
116, 362, 444, 592

"Middle and lower class people live at the rear of their shops, in the second court, if one exists. Since the same patriarchal habits exist in towns as in the countryside, a great concentration of people is found to be living within one dwelling. Single households may include forty or fifty members. As many as 153 persons have been observed to be living in one old foreign-style dwelling in Taihoku."

AD1

146 and vegetables are produced in plentiful supply on Formosa. The diet of the people generally is 262 considered adequate in proteins, minerals, and vitamins, except B2, but the protein is poor in quality, only about 10 per cent of it being derived from animal sources. Fish furnishes about 50 per cent of all animal protein consumed on the island;[3] other principal sources are pork and poultry. Dairy products have a low place in the dietary habits of the people, except for infants whose mothers cannot provide breast-feeding.

B. Housing Conditions and Problems

• 362 Of the problems of food, clothing, and shelter, the latter still poses a serious problem, but the food and clothing problems have been fairly well met. The housing situation remains critical despite the assistance of the government and U. S. agencies in instituting various housing programs and improving housing conditions during the last few years. Much progress has been made in this area, and the day when every citizen occupies adequate housing may not be too far off.

Formosan dwellings may be divided into three main types. A typical good urban dwelling is built of reinforced concrete with kiln brick walls, new tile roof, and cement floors and is equipped with electric lights and running water. A typical good rural house has mudbrick walls, thatch roof, and dirt or cement floor, the water supply comes

3. Economic Co-operation Administration, Economic Development on Formosa 1951-52, Taipei, 1953, pp. 39-40.

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from a well or river, and the light from electricity or kerosene lamps. The third group of dwellings includes all kinds of improvised shacks and huts in urban areas and farm houses built of such cheap and inferior materials as wooden boards or bamboo for walls and corrugated iron or split bamboo for roofing. Houses in the first group may be new or old. Some of them, especially old ones, are built of mudbrick wall and brick or dirt floor. Their sources of water supply range from a municipal water system to a well, ditch, or stream. Electricity is used for lighting by nearly nine tenths of the urban households, and by a little more than one third of the rural homes. Construction of new power lines in rural areas is expected to increase the use of electric lighting in the future.[4] Of more immediate importance to home comfort is weather-tight roofing; some 60 per cent of Formosan houses are reported to have leaking roofs.[5]

Housing conditions during the Japanese occupation were adequate, but general sanitary conditions were not always satisfactory. The destruction of buildings and water supply systems during the war coupled with the recent increase of population, especially in urban areas, have created the post-war housing shortage. Rural people in search of employment and an increasing number of evacuees from the Mainland swarmed to the cities, where reconstruction of houses was slow and land values high. Some of the new arrivals usurped public thoroughfares or the shells of damaged

4. Arthur F. Raper and others, Urban and Industrial Taiwan--Crowded and Resourceful, Taipei, FOA and Nat'l Taiwan Univ., 1954, p.348.

5. Ibid., p. 346.

AD1

362 buildings as sites for temporary huts and shacks. Lack of building material, adequate lighting and toilet facilities, and proper water supply created many crowded and unsanitary slum areas in large cities. This situation has been steadily meliorated in the last five years as Formosa's economic rehabilitation progressed and personal income rose. However, some shacks and huts, somewhat refurbished and assuming an air of permanence, are still found in the cities. Typical of them are the shelters on Chungua Road alongside the railroad in Taipei. They are built of old bricks, thin boards, corrugated iron, and bamboo. In some extreme cases, one room no bigger than 9 by 15 feet serves the living needs of as many as twenty people -- from cooking and dining to sleeping in shelves along the walls.[6] The congestion, poor lighting, inadequate ventilation, dampness, and smoke create the worst imaginable sanitary conditions.

362 648 To relieve the crowding and improve living conditions, several housing programs have been launched through the cooperation of the government, U. S. Aid agencies, and the dwellers concerned. In Keelung, where hundreds of dockworkers' families had lived in sheds and empty crates, 102 new houses were built in 1954 under the Keelung Harbor Docks' Self-Help Housing Program. The program was implemented technically and financially by the Mutual Security

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6. Mutual Security Mission to China, Foreign Operations Administration, Housing, (unpublished pamphlet), Taipei, 1954, p. 1.

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Mission to China (MSMC) in cooperation with the Dockworkers' Union and the Keelung Harbor Bureau. The occupants of the new housing contributed 60 days of unskilled labor for its construction, and are now making amortization payments of 15 per cent of their monthly family incomes, so that in less than ten years they will own the houses they now occupy. The houses are built of cinder-blocks and reinforced concrete, and each provides 288 square feet of living space partitioned into two bedrooms, a living room, kitchen, and toilet. The building cost of a house, including the installation of electricity and running water, is about US$400.[7] The Keelung idea has been extended to Kaohsiung Harbor dockers in the South, and to salt-field and mine workers. More than 295 houses were being built in late 1954 for those three groups of workers.

In the meantime, the MSMC is giving technical assistance and providing a long term loan at low interest to implement the work of the National Housing Program Working Group, currently the National Housing Committee (NHC) of the Chinese Government. The Committee administers the national housing program and undertakes such responsibilities as arranging long-term, low-interest loans for housing investment, promoting self-help building for which the government supplies equipment and technical information, and encouraging cooperative housing programs, etc. Under the auspices of the committee, a National Housing Exhibition featuring 52 selected, low-cost housing

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7. Ibid., p. 4.

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designs -- actually built -- was opened in October 1955 in Taipei.[8] The model houses are built of reinforced concrete, kiln brick wall, cement or brick floor, new style tile roof, and are equipped with electricity and running water. The houses range from four-to seven-room units. The best and most expensive type of design provides for a living room, three bedrooms, a kitchen, a dining room, and a bathroom equipped with flush-toilet -- rarely found in Formosan homes. It is believed that the self-help, low-cost housing program as well as the efforts of NHC will go a long way toward improving housing conditions in Formosa.

II. ENVIRONMENTAL SANITATION

A. General Sanitary Conditions

Climate and economic conditions are the main determinants of the living environment of the Formosan people. Although sanitation is being constantly improved, it is still far from adequate and, with the housing situation, presents a most serious problem in the field of public health. The long summers, relatively warm weather throughout the year, and usually abundant rainfall, provide conditions favorable to the spread of communicable diseases. The rapid increase of population, especially in urban areas, unmatched by proportionate expansion of housing, public sanitation, and fresh water supply facilities has created such new problems as congestion in living quarters, lack of sufficient water, and shortage of public toilets. These conditions aggravate the previously existing situation of poor housing, drainage systems, and waste-disposal facilities.

8. Chung-yang Jih-pao [Central Daily News], Oct. 17, 1950.

B. Specific Conditions and Problems

744 Few homes in Formosa are equipped with modern facilities. Brick stoves burning charcoal are the most common medium for cooking and heating; oil and kerosene lamps provide most of the lighting. Smoke from both these sources is a polluting agent within and outside the home, particularly in the rural areas. According to a recent study, 15 per cent of urban homes and 40 per cent of rural homes are not equipped with electric lighting, to say nothing of other electrical facilities.[9] Drinking water is piped into only about 30 per cent of urban houses and less than 15 per cent of rural dwellings; about one-third of urban households and two-thirds of rural homes obtain water for drinking and cooking from wells; and the rest of the households get their water from irrigation ditches, streams, and springs.[10] Towns under 20,000 population generally do not have a system for piping water into homes.[11] Some wells have pumps, but most are open to pollution by dirt, insects, and the runoff of surface water. Flush-type toilets are rare, only about 1 per cent of urban dwellings have such a facility; the majority of households use inside or outside privies, periodically emptied of night-soil for disposal as fertilizer.

744 362 Sewer systems in towns and cities are networks of open drains designed to carry storm runoff and waste water from domestic and industrial sources. The brick or cement gutters, from one to four feet deep, are generally located between the street and the sidewalk. Occasional cross drains lead into

9. A.F.Raper and others, op.cit., p. 348.
10. Ibid., p. 349.
11. [next page]

744 trunk lines, which empty into open canals. Most
362 urban centers have a system of high-level canals bringing in fresh water, and another network of low-level canals carrying away waste water. However, it is a common sight to see children swimming and women washing clothes or vegetables in low-level canals. Often garbage, night-soil, and other refuse are dumped into the fresh-water canals. Some municipal authorities are now considering elimination of open sewage systems with all their disadvantages, but the enormity of the job and financial difficulties preclude any immediate fulfillment of such plans. For instance, the municipality of Taipei is contemplating the construction of an underground drainage system costing hundreds of millions of Formosan dollars and requiring more than ten years to complete.[12]

744 The scarcity of chemical fertilizers and the
514 average farmer's lack of financial resources necessitates the use of all organic refuse materials from human and animal sources to enrich the soil. The consumption of raw vegetables fertilized by unprocessed night soil is a primary cause of the spread of intestinal diseases. In addition the use of night soil presents problems of collection and disposal. In cities, human excrement from one or more households is often stored in water-tight vaults. The contents are periodically emptied by

11. E. A. Turner, "Environmental Sanitary Conditions in Taiwan," Chinese American Economic Cooperation, Volume II, No. 2, Feb. 1953, pp. 51-65.

12. Central Daily News, Jan. 11, 1955.